

EASYpure™ UV/UF

OPERATION MANUAL AND PARTS LIST

Series 1056

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Safety Information

Alert Signals



Warning

Warnings alert you to a possibility of personal injury.



Caution

Cautions alert you to a possibility of damage to the equipment.



Note

Notes alert you to pertinent facts and conditions.

Your Barnstead EASYpure™ UV/UF has been designed with function, reliability, and safety in mind. It is your responsibility to install it in conformance with local electrical codes. This manual contains important operating and safety information. You must carefully read and understand the contents of this manual prior to the use of this equipment. For safe operation, please pay attention to the alert indicators throughout this manual.

Water purification technology employs one or more of the following: chemicals, electrical devices, mercury vapor lamps, steam and heated vessels. Care should be taken when installing, operating or servicing Barnstead products. The specific safety notes pertinent to this Barnstead product are listed below.

Warnings

To avoid electrical shock, always:

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.
2. Do not locate the EASYpure UV/UF directly over equipment that requires electrical service. Routine maintenance of this unit may involve water spillage and subsequent electrical shock hazard if improperly located.
3. Replace fuses with those of the same type and rating.
4. Disconnect from the power supply prior to maintenance and servicing.

To avoid personal injury:

1. Do not use in the presence of flammable or combustible materials; fire or explosion may result. This device contains components which may ignite such materials.

SAFETY INFORMATION

2. This device is to be used with water feeds only. Sanitizing/cleaning agents must be used in compliance with instructions in this manual. Failure to comply with the above could result in explosion and personal injury.
3. Avoid splashing disinfecting solutions on clothing or skin.
4. Ensure all piping connections are tight to avoid chemical leakage.
5. Ensure adequate ventilation.
6. Carefully follow manufacturer's safety instructions on labels of chemical containers and material safety data sheets.
7. Depressurize system prior to opening cartridge access door.
8. This unit is equipped with an ultraviolet lamp. Ultraviolet radiation may be harmful to the eyes and skin. Do not attempt to observe the lamp directly.
9. A small amount of 2.0% hydrogen peroxide is used to preserve the ultrafilter during storage. When removing the ultrafilter from the bag, ensure adequate ventilation and wear protective gloves and glasses.
10. Refer servicing to qualified personnel.

Introduction

The Barnstead EASYpure UV/UF is a line-fed water purification system designed to provide pyrogen-free, low TOC reagent grade water that exceeds ASTM, Type I, Type A and NCCLS Type I standards. It uses a three-stage deionization process combined with UV oxidation, a 10,000 molecular weight cutoff ultrafilter and a 0.2 micron filter to polish pretreated water (distilled, deionized, or reverse osmosis) to produce pyrogen-free (<0.005 EU/ml), low TOC (<2 ppb) water with a resistivity of up to 18.3 megohms-cm. Water resistivity is continuously sensed by a resistivity cell and displayed on a digital display. The EASYpure UV/UF is designed to automatically clean the ultrafilter by flushing water through the filter for one minute every twenty-four hours. This water is sent to drain.

General Use

Do not use this product for any purpose other than its intended usage.

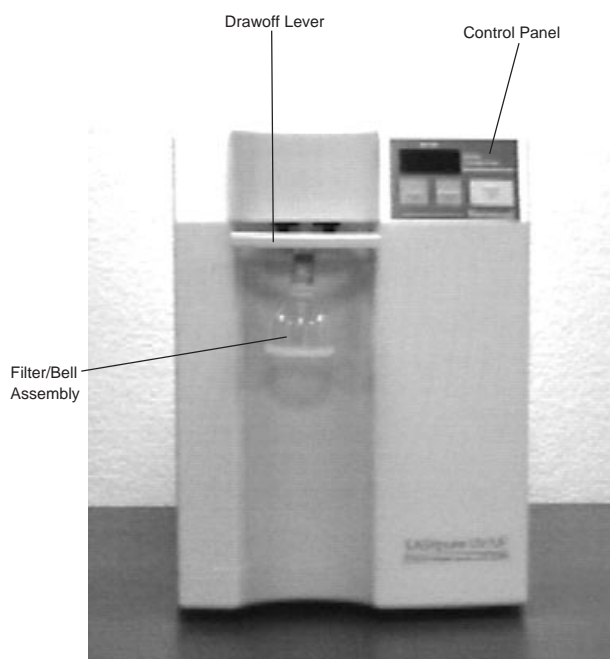


Figure 1: EASYpure UV Front

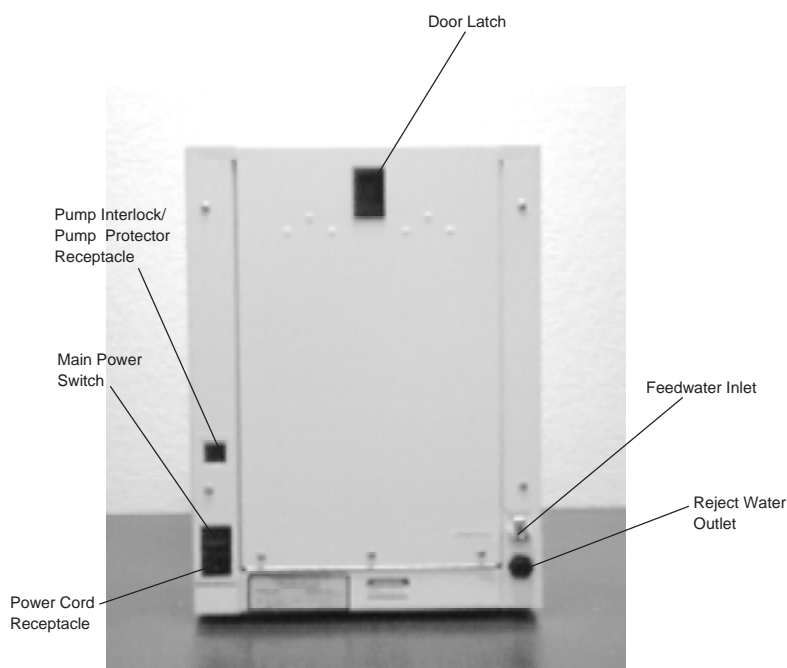


Figure 2: EASYpure UV Back

General Specifications

Dimensions and Clearance Requirements

EASYPure UV/UF dimensions: 12" W X 19" D X 17 1/8" H (30.5 cm X 48.3 cm X 43.5 cm).

Clearances:

Sides: 4" (10.2 cm) minimum to allow air flow.

Above: 12" (30.5 cm) minimum for removal of the top cover.

Cartridge replacement requires that you be able to access the back of the unit and open the cartridge access door (total depth, unit + open door, = 34" (86.4 cm)).

Electrical Requirements

The EASYPure UV/UF is equipped with a power cord to be plugged into an electrical outlet of the appropriate voltage.

Model D8611 - 120 VAC $\pm 5\%$, -10%, 47-63 Hz.

Model D8612 - 240 VAC $\pm 5\%$, -10%, 47-63 Hz.

Model D8612-33 - 230 VAC $\pm 10\%$, 47-63 Hz.

Model D8613 - 100 VAC $\pm 5\%$, -10%, 47-63 Hz.

Feedwater Requirements

The EASYPure UV/UF requires water pretreated by either distillation, deionization or reverse osmosis meeting the following criteria.

TOC: Less than 1.0 ppm.

Turbidity: 1.0 N.T.U. maximum

Temperature: 40°F - 120°F (4.4°C - 48.8°C)

Resistivity (Minimum):

Distilled - 300,000 Ohms

Deionized - 1.0 Megohms

Reverse osmosis - 50,000 Ohms

Product Water

Quality:

Resistivity: ASTM Type I

TOC: Less than 2.0 ppb

Endotoxin: Less than 0.005 EU/ML

Flow rate: 1.5 LPM maximum at minimum inlet feedwater pressure of 30 PSIG at 60 HZ and with a new final filter.

Environmental Conditions

Operating: 4°C - 49°C; 20% - 80% relative humidity, non-condensing. Installation Category II (over-voltage) in accordance with IEC 664. Pollution Degree 2 in accordance with IEC 664. Altitude limit: 5,000 meters.

Storage: -25°C - 65°C; 20% to 80% relative humidity.

Declaration of Conformity

Barnstead|Thermolyne hereby declares under its sole responsibility that this product conforms with the technical requirements of the following standards (applies to -33 model(s) only):

EMC: EN 50081-1 Generic Emission Standard;
EN 50082-1 Generic Immunity Standard.

Safety: IEC 1010-1-92 Safety requirements for electrical equipment for measurement, control and laboratory use;
Part I: General Requirements

per the provisions of the Electromagnetic Compatibility Directive 89/336/EEC, as amended by 92/31/EEC and 93/68/EEC, and per the provisions of the Low Voltage Directive 73/23/EEC, as amended by 93/68/EEC.

The authorized representative located within the European Community is:

Electrothermal Engineering, Ltd.
419 Sutton Road
Southend On Sea
Essex SS2 5PH
United Kingdom

Copies of the Declaration of Conformity are available upon request.

Unpacking and Installation

Unpacking

1. Remove the unit from its shipping container. Ensure that the ultrafilter, UV lamp, feed and reject tubing, final filter, sanitization cartridge and power cord are removed from the packaging materials before discarding.

Tubing Adapter Installation

The following instructions will apply when you need to attach a piece of tubing to your EASYpure UV/UF during installation, unless otherwise noted in the installation instructions. To make tubing connections:

1. Completely disassemble the fitting. Refer to Figure 3 to familiarize yourself with the names of the component parts.
2. Make sure the tubing is cut off reasonably square and that no plastic burrs or ridges are present.

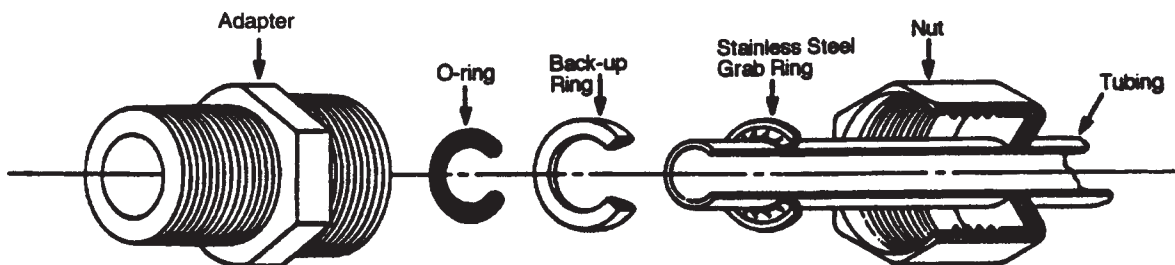


Figure 3: Typical Polypropylene Tubing Adapter Installation



Caution

Do not tighten tube fitting hex nut with a wrench. Tight connections can be easily made by hand.



Warning

Depressurize system prior to opening cartridge access door.



Warning

A small amount of 2.0% hydrogen peroxide is used to preserve the ultrafilter during storage. When removing the ultrafilter from the bag, ensure adequate ventilation and wear protective gloves and glasses.

Disconnect tubing from this "T" to install ultrafilter



Figure 4: "T" Removal

3. Place the grab ring and back-up ring in the hex nut in the order and orientation shown in Figure 3. Thread the nut onto the adapter. DO NOT use the o-ring at this time.
4. Push the tubing through the nut until it bottoms out in the adapter.
5. Remove the adapter nut and tubing. Place the o-ring over the tubing. Be careful not to push the back-up ring or grab ring further back on the tubing when installing the o-ring.
6. Install the hex nut on the adapter and hand tighten.

Ultrafilter and UV Lamp Installation

Install the ultrafilter as follows:

1. Remove the pump interlock plug. Open the cartridge access door in the rear of the unit by sliding the latch down and pulling the door toward you. The door will swing down. Remove the screws securing the EASYpure UV/UF's cover. Remove the cover.
2. There are two "T's" installed in the interior water lines of the EASYpure UV/UF. One of these "T's" is connected to water lines which have identifying labels attached to them ("Reject" and "Product"). Remove this "T". Ensure that the nut, stainless-steel grab ring, backup ring and o-ring from each connection remain on each piece of tubing. Dispose of the "T" once you have removed it.
3. Remove the ultrafilter from its protective bag.
4. Identify the feed, product and reject connectors on the ultrafilter. The feed connector is the solitary one on one end of the ultrafilter. Hold the ultrafilter so the feed connectors on the top face

INSTALLATION

you. Viewed this way, the product connector is the one on the left. The reject connector is the one on the right. (See Figure 5) Remove the nut, stainless steel grab-ring, backup ring and o-ring from each of the ultrafilter connections and discard.

5. The three pieces of tubing that you disconnected from the "T" in step 2 are the Feed, Reject and Product lines for the ultrafilter. The Reject and Product tubing nuts are labeled; the unlabeled one is the Feed line. Connect the ultrafilter Feed, Reject and Product lines to the appropriate connectors on the ultrafilter, identified in step 4. Ensure that the stainless-steel grab ring, backup ring and o-ring from each connector remain on each piece of tubing. Tighten the connectors by hand; do not use a wrench.
6. Press the ultrafilter into the ultrafilter securing clips inside the EASYpure UV/UF case. Ensure that you maintain the proper orientation of the ultrafilter during installation, with the feed connection on the bottom and the reject and product connections on the top.

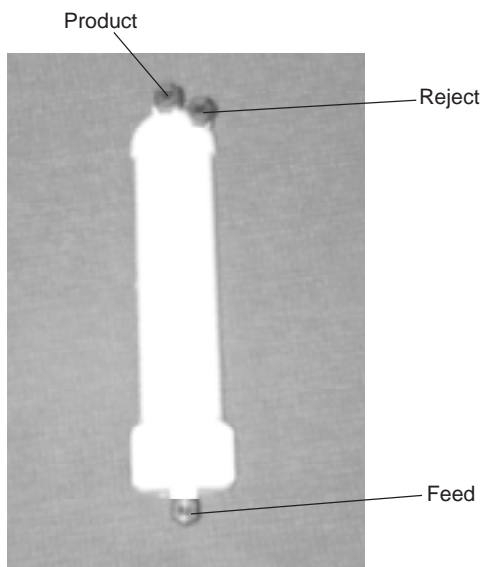


Figure 5: Ultrafilter Connections

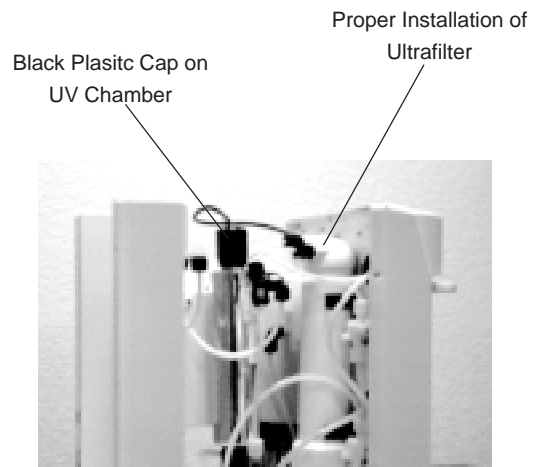


Figure 6: Ultrafilter Orientation and UV Chamber Location



Caution

Do not unscrew the cover, as this will loosen the water tight seal and thus damage the UV lamp.



Caution

Do not touch the glass portion of the UV lamp. We recommend that you wear lint-free gloves when handling the lamp. The glass portion must be free of fingerprints, perspiration, etc. Even a single fingerprint will reduce the effectiveness of the lamp. If you accidentally touch the glass portion of the lamp, clean the lamp with a lint-free cloth; use isopropyl alcohol if required.



Note

The UV lamp and receptacle fit together one way. If they do not readily match holes to prongs, rotate the lamp 90° and try again.



Warning

Do not locate the EASYpure UV/UF directly over the equipment that requires electrical service. Routine maintenance of this unit may involve water spillage and subsequent electrical shock hazard if improperly located.

Do not use in the presence of flammable or combustible materials; fire or explosion may result. The device contains components which may ignite such materials.

7. Locate the UV chamber. Carefully remove the black plastic cover from the UV chamber by pulling the cover straight up. Do not pull on the cable.
8. Remove the UV lamp from the packaging. Do not touch the glass portion of the lamp!
9. Clean the UV lamp with isopropyl alcohol and a lint free cloth.
10. Carefully insert and hold the UV lamp partially into the UV chamber.
11. Connect the UV lamp to the receptacle in the black plastic cover of the UV chamber. Replace the black plastic cover on the UV chamber.
12. Replace the EASYpure UV/UF cover and secure the cover with the screws removed in step 1. Close the cartridge access door. Replace the pump interlock plug. If you are bench mounting the unit, go to Bench Mounting. If you are wall mounting the EASYpure UV/UF, go to Wall Mounting .

Bench Mounting

1. Place the EASYpure UV/UF on a bench top that is accessible to water, electricity and an atmospherically vented drain, and that is convenient to your work area, noting the Clearance Requirements.

**Note**

The outlet of a gravity feed storage reservoir must be above or at the same level as the inlet of the EASYpure UV/UF.

**Caution**

Wall composition, condition and construction, as well as fastener type, must be considered when mounting this unit. The mounting surface and fasteners selected must be capable of supporting a minimum of 120 lbs. Inadequate support and/or fasteners may result in damage to mounting surface and/or equipment. If you are unsure of mounting surface composition, condition and construction or correct fasteners, consult your building maintenance group or contractor.

Wall Mounting (Optional)

Install the optional wall bracket on the wall in a location that is accessible to water, electricity and an atmospherically vented drain, and that is convenient to use. A minimum of 4 fasteners must be used.

1. Remove the four feet from the EASYpure UV/UF and retain the screws.
2. Place the EASYpure UV/UF on the wall bracket swivel base so the screw holes where the feet were attached line up with the holes in the wall bracket. There are guides on the wall bracket that will mate with the EASYpure UV/UF. See Figure 7.
3. Reinstall the four screws removed in step 1 through the bottom of the wall bracket and into the EASYpure UV/UF.

Water Connections

Feedwater Connection

1. Locate the length of 3/8" O.D. tubing provided with a quick disconnect insert on one end and a 3/8" O.D. X 1/4 NPT tubing adapter on the other.
2. Install the tubing adapter onto your incoming water line. We recommend a customer supplied shut off valve be installed in your feed water line. Do not connect the feedwater to your EASYpure UV/UF until you are told to do so. (See Initial Operation.)

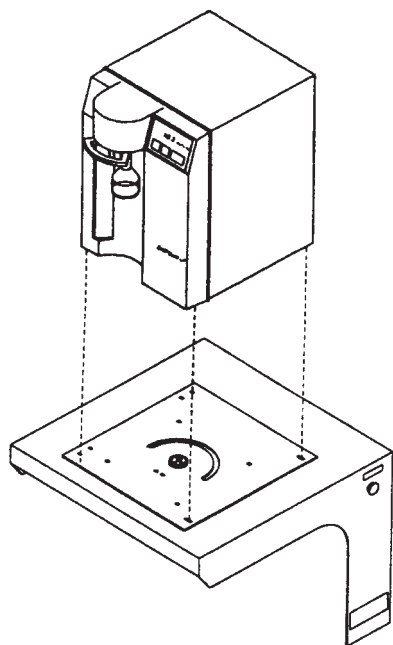


Figure 7: Orientation of Swivel Base

Reject Water Connection

When the EASYpure UV/UF flushes its membrane, the water used is sent to drain through this connection. To install:

1. Locate the reject water tubing. This is the piece of 1/4" O.D. tubing that has an adapter on one end and no connector on the other end. Remove the nut, grab ring, backup ring and o-ring from the reject water fitting located at the lower right of the unit. (See Figure 3 for part identification and Figure 8 for fitting location.)
2. Follow instructions under Tubing Adapter Installation and connect the reject water tubing to the reject connection on the EASYpure UV/UF.
3. Route the other end of the reject water tubing (the end with the adapter installed) to an atmospherically vented drain. Ensure there are no kinks in the tubing and that it proceeds in a downward plane. If possible, use the tubing adapter to permanently install the reject water tubing in the drain.

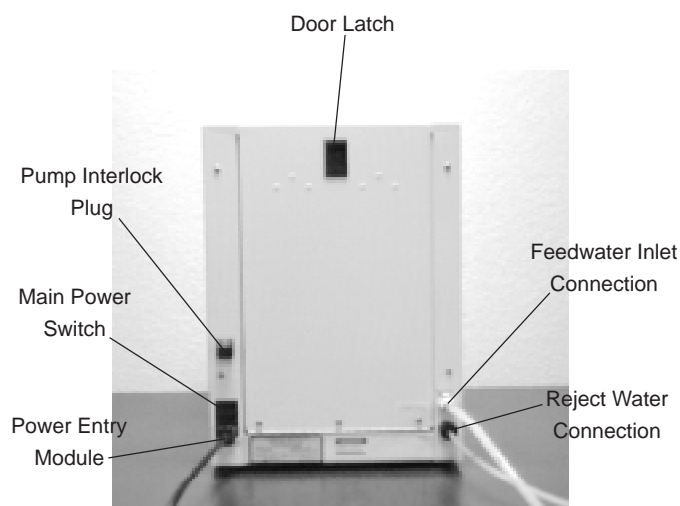


Figure 8: EASYpure UV/UF Connections

Controls

Main Power Switch

The main power switch on the EASYpure UV/UF is located on the back right of the unit (as you face the front of the unit), directly above the power cord receptacle.

Control Panel

The EASYpure UV/UF is controlled through a control panel which incorporates three switches, three indicating LED's and a digital display.

Switches

When the main power switch (on the back of the unit) is on, the three switches on the control panel function as follows:

Start/Stop

When the unit is in the Off Mode, pressing the START/STOP switch will put the unit in the run mode, starting the pump and energizing the display. When the EASYpure UV/UF is in the Standby Mode, pressing the START/STOP switch will return the unit to run mode.

When the unit is in the run mode, pressing the START/STOP switch will put the unit into the Off Mode.

Standby

Pressing the Standby switch will place the unit in Standby Mode from either the Run Mode or the Off Mode. Pressing the Standby switch while the unit is in Standby Mode has no further effect.

Flush

Pressing the Flush switch once will initiate a one minute flush of the ultrafilter. During this one minute flush, water is sent to drain through the reject tubing, the Manual/Extended Flush LED will be lit, and the display will be dark.

Pressing the Flush switch twice will initiate a five minute flush of the ultrafilter. During this five minute flush, water is sent to drain through the reject tubing, the Manual/Extended Flush LED will flash, and the display will be dark. After the timed flush has ended, the EASYpure UV/UF will return to the Mode (Off, Run or Standby) it was in when you initiated the flush. We recommend that you initiate a one minute manual flush when starting up the EASYpure UV/UF prior to your day's work.

Display

When the EASYpure UV/UF is in run mode, the display indicates the purity (in megohms-cm) of the water available for draw off. When the EASYpure UV/UF is in Standby mode, the display will be dark and the Standby LED will be lit. When the EASYpure UV/UF is in a Flush mode, the display will be dark and the Manual/Extended Flush LED will be either lit (indicating a one-minute flush) or flashing (indicating a five-minute flush). During an Automatic Flush, the Automatic Flush LED will be lit. If the display indicates anything else, see the **Troubleshooting** section of this manual.

Operational Modes

Run Mode

Since not all qualities of permissible feedwater will reach maximum resistivity after one pass through the unit's cartridges (especially as the cartridges near exhaustion), the EASYpure UV/UF has two operational modes.

In the run mode, the UV lamp shines continuously and the pump continuously recirculates water through the cartridges, the UV chamber and the ultrafilter. It is recommended that the EASYpure UV/UF be left in the run mode during the day. In the run mode, the purity meter display indicates the resistivity of the water available for draw off.



Note

Do not turn off the EASYpure UV/UF during non-work hours. Doing so will allow bacterial growth and other contamination of the water in the system. As a result, the system will require a lengthy rinse-up period at the beginning of the work day to achieve high-quality product water.

Standby Mode

In Standby Mode, the UV lamp shines and the pump runs for ten minutes out of every hour (i.e 10 minutes on, 50 minutes off). This will allow the unit to produce high quality water quickly upon being placed in the run mode. It is recommended that the EASYpure UV/UF be placed in the Standby mode during non-work hours.

Automatic Flush

In both the run and Standby modes, the EASYpure UV/UF will initiate a one minute automatic flush of the ultrafilter once every twenty-four hours of operation. This prevents bacterial buildup on the ultrafilter. A solid-state timer in the EASYpure UV/UF counts the hours power is applied to the unit. When the timer reaches twenty-four hours, the EASYpure UV/UF initiates a one minute flush, the Automatic Flush LED is illuminated. The timer will reset to zero when the one minute automatic flush is completed.

Initial Operation



Warning

Avoid splashing disinfecting solutions on clothing or skin.

Ensure all piping connections are tight to avoid chemical leakage.

Ensure adequate ventilation.

Carefully follow manufacturer's safety instructions on labels of chemical containers and material safety data sheets.

This device is to be used with water feeds only.

Sanitizing/cleaning agents must be used in compliance with instructions in this manual. Failure to comply with the above could result in explosion and personal injury.

Use of a properly grounded electrical outlet of correct voltage and current handling capacity.

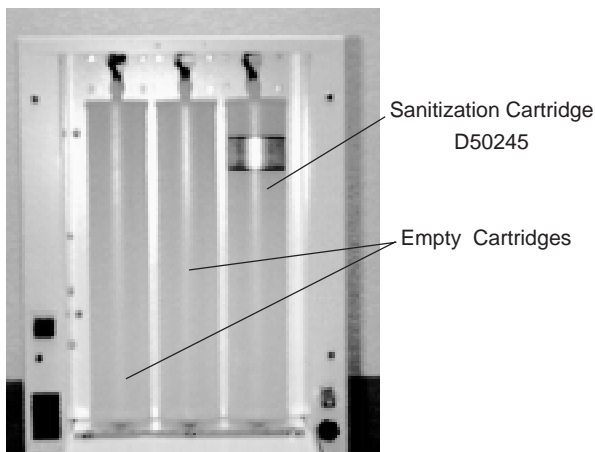


Figure 9: Preparing To Sanitize

Initial Sanitization

Your EASYpure UV/UF has been shipped with a sanitization cartridge (Catalog Number D50245) and two empty cartridges to allow you to sanitize your EASYpure UV/UF prior to using it for the first time. To sanitize your EASYpure UV/UF:

1. Open the cartridge access door. Install the supplied D50245 sanitization cartridge in the empty cartridge position. Press the upper end cap into the upper right position until it bottoms out. Then, lower the cartridge and insert the lower end cap into the lower socket until it is firmly seated. The empty cartridges have been installed for you at the factory. Close and latch the cartridge access door.
2. Insert the quick disconnect insert on the feedwater line into the feedwater inlet quick disconnect on the back of the EASYpure UV/UF.
3. Plug the power cord into the unit's power entry module and plug into a live outlet. Place the main power switch to the on position. Place a suitable container under the outlet valve. Depress the draw-off lever to open the outlet valve. Press the "Flush" button twice to begin an extended flush.
4. Close the draw-off valve when solution exits the system.
5. When the extended flush stops (5 minutes), open the draw-off valve. Press the START/STOP button to start. Draw off 2.0 liters of solution through the draw-off valve. Close the draw-off valve. Discard the solution.
6. Recirculate the disinfectant solution for approximately 30-45 minutes.
7. Press the START/STOP button to stop.



Warning

Depressurize system prior to opening cartridge access door.



Note

If the EASYpure UV/UF is wall mounted, rotate the EASYpure UV/UF until the cartridge access door faces forward and the EASYpure UV/UF locks into place.

The EASYpure UV/UF's cartridges must be installed in the proper order.

If you have just sanitized your EASYpure UV/UF, retain the empty cartridges shipped with your unit for use when you sanitize it in the future, discard the D50245 sanitization cartridge.

The cartridges will still contain water when removed. Therefore, you will want to have a sink, bucket or other waterproof container available to place them in after removal.

The upper end cap is the one with the right-angle turn and the two flanges. The lower end cap extends straight out from the cartridge.

The two flanges on the end cap should be able to slide down on each side of the keyway wall.

8. Open the draw-off valve to depressurize the system. **Leave valve open until solution completely stops flowing, draining as much of the system as possible.**
9. Proceed to Cartridge Installation and Rinse Up.

Cartridge Installation and Rinse Up (Refer to Figure 10)

1. Open cartridge access door in the rear of the unit by pushing the door latch down.
2. Remove the cartridge in the right-hand cartridge position by pulling it first up and then out. Used cartridges can be recycled; see the P.U.R.E. information packed with your new cartridges.
3. Remove a new Pretreatment cartridge (Catalog No. D50230) from its plastic bag.
4. Wet the o-rings on both end caps.
5. Press the upper end cap into the upper right position until it bottoms out.
6. Lower the cartridge and insert the lower end cap into the lower socket until it is firmly seated.
7. Repeat steps 2 - 6 with the EASYpure ULTRApure (Catalog No. D50233) cartridge, placing it in the center position. *Do not install the High Purity/Low TOC (Catalog No. D50229) cartridge or the 0.2 micron filter and bell assembly at this time.*
8. Close cartridge access door.
9. Place a suitable container under the outlet valve. Depress the draw-off lever to open the draw-off valve.

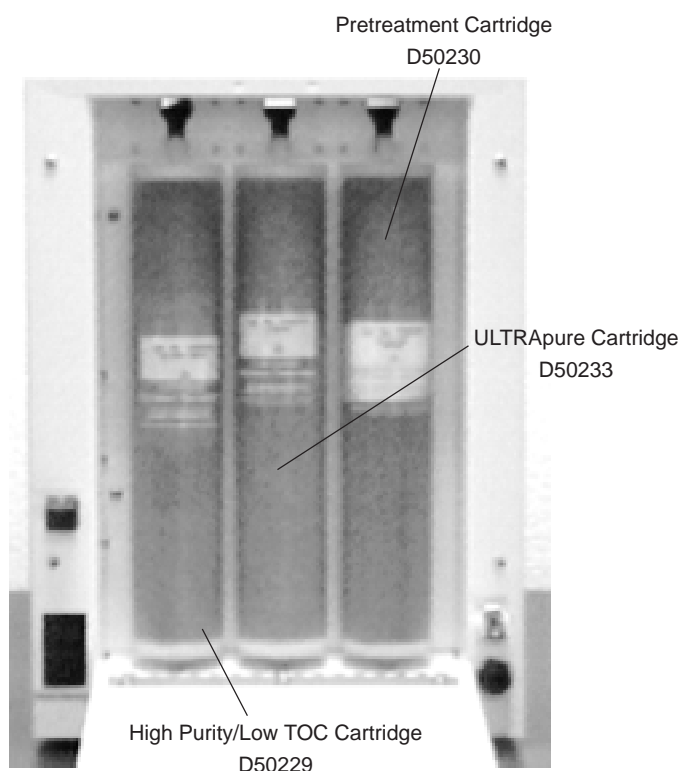


Figure 10: Proper Cartridge Position and Order



Warning

Use properly grounded electrical outlet of correct voltage and current handling capacity.



Caution

Do not allow EASYpure UV/UF to operate unless water is available to unit.



Note

For more demanding applications where low TOC water is required, a rinse of 15-20 liters through the cartridges and filter may be necessary.

10. Press the “Flush” button twice to begin an extended flush. When water begins exiting the system, close the draw-off valve.
11. When the extended flush ends, press the START/STOP button to stop and **depressurize the system by opening the draw-off valve and allowing water to drain from the unit until draining ceases.** Close the draw-off valve. Open the cartridge access door and repeat steps 2 - 6 with the EASYpure High Purity/Low TOC (Catalog No. D50229) cartridge, placing it in the left-hand position. *Do not install the 0.2 micron filter and bell assembly at this time.*
12. Close the cartridge access door. Press the “Flush” button twice again to begin another extended flush. When the extended flush ends, open the draw-off valve and press the START/STOP button. Rinse 10-15 liters of water through the draw-off valve to drain. Close the draw-off valve.
13. Remove a new 0.2 micron filter and bell assembly from its bag and insert it into the Luer fitting on the draw-off valve. Gently turn it clockwise until it is fully seated in the Luer fitting.
14. Remove the protective cap from the filter bell. Open the draw-off valve and flush 10-15 liters of water through the 0.2 micron filter.

Normal Operation



Note

On initial start-up, the purity meter may display “ERR”. This is caused by air in the cell and should be replaced by a resistivity reading almost immediately. If “ERR” does not go out after the pump has run for a minute or if it appears any time while the EASYpure UV/UF is in operation, refer to the **Problem Solving** section of this manual.



Note

For low organic and pyrogen applications, draw off 50 to 100 ml of water from system and discard prior to drawing water for **each** use.



Note

Do not turn off the EASYpure UV/UF during non-work hours. Doing so will allow bacterial growth and other contamination of the water in the system. As a result, the system will require a lengthy rinse-up period at the beginning of the work day to achieve high-quality product water.

1. Press the START/STOP button to start. The EASYpure UV/UF's pump will begin to run and the Purity meter will display the resistivity of the water in megohm-cm.
2. Allow the water's resistivity to rise to the desired purity before drawing off water.
3. The system should be left on during the work day. (See use of Standby mode.)

Water Draw Off

1. Remove the protective cap from the filter bell.
2. Depress the draw-off lever.
3. When draw off is complete, lift the draw-off lever and replace the protective cap on the filter bell.

Use of Standby Mode

At the end of the work day, press the Standby switch on the front of the EASYpure UV/UF to place the unit in Standby mode for the night.

Installing Float or Pressure Switch



Warning

Disconnect from the power supply prior to maintenance and servicing.

Accessories D0606 (float switch) and D2706 (pressure switch) are designed to protect the EASYpure UV/UF pump by alerting the EASYpure UV/UF of an inadequate feedwater condition so that the pump can be shut down. Use the following instructions for installation.

1. Disconnect the unit from the electrical power.
2. If using D0606 float switch, follow the installation instructions included with the float switch for installation to tank.
3. If using D2706 low pressure switch, install the PVC tee (supplied with D2706) in incoming water line. Screw the switch into the top of the tee, then connect the inlet tubing to the EASYpure UV/UF with the remaining opening.
4. Route cable from float or low pressure switch to the rear of the EASYpure UV/UF.
5. Remove jumper plug and save for future use.
6. Plug the cable into the jumper plug outlet.
7. Reconnect electrical power.

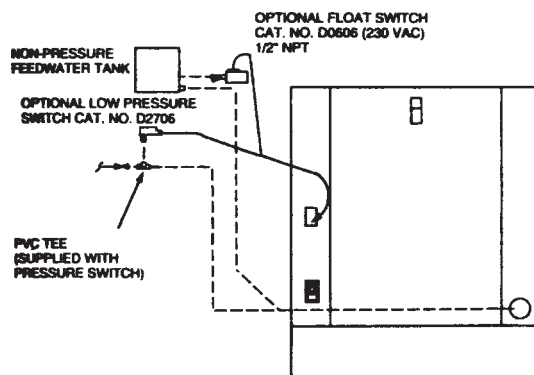


Figure 11: Float and Pressure Switch Installation

Maintenance and Servicing



Warning

Disconnect from the power supply prior to maintenance and servicing. Refer servicing to qualified personnel.



Note

The cartridges will still contain water when removed. Therefore, you will want to have a sink, bucket or other waterproof container available to place them in after removal.



Warning

Depressurize system prior to opening cartridge access door.



Note

If the EASYpure UV/UF is wall mounted, remove the power cord and rotate the EASYpure UV/UF until the cartridge access door faces forward and the EASYpure UV/UF locks into place.



Note

The two flanges on the end cap should be able to slide down on each side of the keyway wall.

System Sanitization and Cartridge Replacement

The frequency with which you will need to clean your unit and replace cartridges is dependent on your feedwater's characteristics, your purity requirements and your usage. Sanitize your EASYpure UV/UF and replace the cartridges when the product water purity drops below acceptable levels of resistivity, when organic levels become too high, or if a new 0.2 micron filter was installed. To sanitize the EASYpure UV/UF, the purification cartridges must be replaced with a sanitization cartridge and the two empty cartridges supplied with your unit. The simple-to-use sanitization cartridge is available from Barnstead|Thermolyne (Catalog No. D50245). This is used in addition to the empty cartridges included with this unit to effect a complete sanitization.

1. Turn unit off.
2. Disconnect the unit from the power supply. Disconnect the unit from the water supply.
3. **Depressurize system by opening the draw-off valve.**
4. Open the cartridge access door in the rear of the unit by sliding the latch down and pulling the door toward you. The door will swing down.
5. Remove the exhausted cartridge in the right-hand position by pulling it first up and then out. Used cartridges can be recycled; see the P.U.R.E. information packed with your new cartridges.
6. Remove a D50245 sanitization cartridge from its packaging. Press the upper end of the D50245 sanitization cartridge into the upper right position until it bottoms out.
7. Lower the cartridge and insert the lower end cap into the lower socket until it is firmly seated.



Note

Used cartridges may be recycled. See P.U.R.E. information packed with new cartridges.

8. Repeat steps 2 - 6 with the two empty cartridges supplied with your EASYpure UV/UF, placing them in the center and left-hand positions.
9. Close the cartridge access door. Remove the 0.2 micron filter and bell assembly.
10. Sanitize, install new cartridges and rinse according to the instructions for Initial Sanitization and Cartridge Installation in the Initial Operation section.

General Cleaning Instructions

Wipe exterior surfaces with lightly dampened cloth containing mild soap solution.



Caution

Do not overtighten the 0.2 micron filter assembly onto the Luer fitting or use excessive force in seating it. The filter and/or Luer fitting can be damaged by overtightening or excessive force.



Note

If a newly installed 0.2 micron filter clogs rapidly after installation, the EASYpure UV/UF may need to be sanitized to remove bacterial contaminants. **See System Sanitization.**

0.2 Micron Filter Replacement

Replace the 0.2 micron filter whenever any of the following conditions occur: every 30 days, the product water flow rate is reduced or bacteria break through. The 0.2 micron filter is shipped assembled with a bell. To replace the 0.2 micron filter assembly:

1. Remove the old 0.2 micron filter assembly by turning it counterclockwise until it is free from the Luer fitting.
2. Remove the new 0.2 micron filter assembly from its bag and insert it into the Luer fitting. Gently turn it clockwise until it is fully seated in the Luer fitting.
3. Rinse 10-15 liters of water through the filter to drain prior to using the product water.

**Note**

Some water will drain from the ultrafilter when you disconnect it. Have a container ready to hold the ultrafilter and catch the water while it drains. Water will also drain from the tubing of the EASYpure UV/UF onto your bench or floor. To avoid slipping and falling, clean up all spills.

**Warning**

Depressurize system prior to opening cartridge access door.

**Warning**

This unit is equipped with an ultraviolet lamp. Ultraviolet radiation is harmful to the eyes and skin. Do not attempt to observe the lamp directly.

**Note**

The UV Solid State Ballast in the EASYpure UV/UF cabinet has a green light that will be lit if the lamp is illuminated. Also, an audible sound will alert you if the lamp is not lit or is disconnected.

Ultrafilter Replacement

The length of your ultrafilter's life will depend to some extent on conditions and use in your lab. When you are unable to completely sanitize your system (i.e. you can no longer get pyrogen-free water even after sanitizing the system), replace the ultrafilter as follows:

1. Turn off the EASYpure UV/UF and disconnect it from the power supply.
2. Depressurize the system by opening the draw-off valve, allowing water to drain until no more water flows from the valve.
3. Follow the instructions for ultrafilter installation found under Ultrafilter Installation, removing the old ultrafilter in the same way that the instructions describe removing the "T".
4. Sanitize the EASYpure UV/UF according to the instructions on page 24.

UV Lamp Replacement

The ultraviolet lamp requires changing every 90-120 days. Lamp life will vary according to the number of times the EASYpure UV/UF unit is turned on and off (the START/ STOP mode). This estimated lamp life is based on the EASYpure UV/UF being operated in the RUN mode during normal working hours (assumed to be 9 hours/day, 5 days/ week) and then placed in the STANDBY mode during off hours (15 hours/day), weekends and holidays. Since the lamp turns on 10 minutes/hour during the STANDBY mode, this amounts to 15 START/STOP cycles per working day. If the EASYpure UV/UF is cycled between the RUN and STANDBY modes during the work day, this will result in a shorter lamp life. Therefore, it is recommended that the EASYpure UV/UF be left in the RUN position during normal working hours. Leaving the unit in the STOP mode at night and on weekends will lengthen UV bulb life but will compromise water quality. Higher rates of bacterial growth, as well as ionic and organic purity degradation, will occur,



Warning

Depressurize system prior to opening cartridge access door.



Caution

Do not unscrew the cover, as this will loosen the water tight seal and may damage the replacement lamp. Pull the cover straight up.



Note

Pay close attention to the orientation of the plug as it is attached to the UV lamp. It will be necessary to ensure that the plug is installed in the same manner as removed.

necessitating the EASYpure UV/UF be placed in a recirculating mode for up to one hour to achieve organic content of 2 ppb TOC.

To replace the ultraviolet lamp:

1. Turn off the EASYpure UV/UF and disconnect it from the power supply. Remove the power cord and the pump protector or interlock plug from the rear or the unit.
2. **Depressurize the system by opening the draw-off valve, allowing water to drain until no more flows from the valve.**
3. Open the cartridge access door. Remove the screws securing the EASYpure UV/UF cover.
4. Remove the cover by lifting straight up.
5. Locate the UV oxidation chamber and pull the top black plastic cover off. *Do not pull on the cable.*
6. While holding on to the lamp, remove the plug from the lamp.
7. Remove the replacement lamp from its container. **DO NOT TOUCH THE GLASS PORTION OF THE LAMP.** It is recommended that lint free gloves be worn when handling the lamp. The glass portion must be free of fingerprints, perspiration, etc. Even a light coating of perspiration will reduce the effectiveness of the lamp.
8. Clean the lamp with isopropyl alcohol and a lint free cloth.
9. Carefully insert and hold the UV lamp partially into the UV chamber.
10. Connect the UV lamp to the receptacle in the black plastic cover of the UV chamber. Replace the black plastic cover on the UV chamber.
11. Reinstall the EASYpure UV/UF cover. Close the cartridge access door.

12. Reattach the power cord and the pump protector or the pump interlock and reconnect the unit to the power supply.
13. Operate normally.

**Warning**

Depressurize system prior to opening cartridge access door.

**Warning**

Replace fuses with those of the same type and rating. Fuse Type 5 x 20 mm, Time Lag (T) 250V 1.0 Amp.

Fuse Replacement

1. Turn off the EASYpure UV/UF and disconnect it from the power supply. Remove the power cord and the pump protector or interlock plug from the rear of the unit.
2. Depressurize the system by opening the draw-off valve, allowing water to drain until no more flows from the valve.
3. Open the cartridge access door. Remove the screws securing the EASYpure UV/UF cover.
4. Remove the cover by lifting straight up.
5. Pull out the fuse drawer located in the power entry module.
6. Remove old fuses and replace with fuses of the same type and rating. (See Parts Listing.)
7. Replace fuse drawer.
8. Reinstall the EASYpure UV/UF cover. Close the cartridge access door.
9. Reattach the power cord and the pump protector or the pump interlock and reconnect the unit to the power supply.
10. Operate normally.

UV Solid State Ballast Fuse Replacement

1. Turn off the EASYpure UV/UF and disconnect it from the power supply. Remove the power cord and the pump protector or interlock plug from the rear of the unit.
2. **Depressurize the system by opening the draw-off valve, allowing water to drain until no more flows from the valve.**
3. Open the cartridge access door. Remove the screws securing the EASYpure UV/UF cover.
4. Remove the cover by lifting straight up.
5. Locate the UV Solid State Ballast fuse, located in the Solid State Ballast, above the pump motor.
6. Remove the old fuse and replace with a fuse of the same type and rating. (See Parts Listing.)
7. Reinstall the EASYpure UV/UF cover. Close the cartridge access door.
8. Reattach the power cord and the pump protector or the pump interlock and reconnect the unit to the power supply.
9. Operate normally.



Warning

Depressurize system prior to opening cartridge access door.

Cleaning the Resistivity Cell

1. Turn off the EASYpure UV/UF and disconnect it from the power supply. Remove the power cord and the pump protector or interlock plug from the rear of the unit.



Caution

The cell electrodes are etched to improve wetting characteristics. Do not mechanically abrade or damage this surface (i.e. do not clean with a wire brush, sandpaper, etc.).

Do not immerse the entire cell assembly in cleaning solution, only the electrode portion.



Warning

Carefully follow manufacturer's safety instructions on labels of chemical containers and material safety data sheets.

2. **Depressurize the system by opening the draw-off valve, allowing water to drain until no more flows from the valve.**
3. Open the cartridge access door. Remove the screws securing the EASYpure UV/UF cover.
4. Remove the cover by lifting it straight up.
5. Remove the filter and Luer fitting. Carefully remove the front cover. Disconnect membrane switch lead from the printed circuit board.
6. Remove the screw holding the cell-cable retaining clip.
7. Disconnect the cell lead from the printed circuit board and gently pull the cable out of the EASYpure UV/UF frame.
8. Unscrew and remove the cell.
9. Disconnect the cell lead from the printed circuit board and gently pull the cable out of the EASYpure UV/UF frame.
10. Unscrew and remove the cell.
11. Carefully remove the O-ring before cleaning the cell.
12. Wash the cell in a mild detergent solution or a 10% Hydrochloric or Sulfuric acid solution (follow acid manufacturers warnings and recommended handling procedures found on package labels and Material Safety Data Sheets). This may be done in an ultrasonic cleaner or with a soft brush.
13. Thoroughly rinse the cell in deionized or distilled water following the detergent or acid cleaning.
14. After cleaning, reinstall and check the o-ring on cell; replace if necessary.
15. Reinstall the cell well and hand tighten. Reroute the cable up through the housing and reconnect.

16. Reinstall the screw holding the cell-cable retaining clip. Reinstall membrane switch lead. Replace the front cover. Replace the Luer fitting with new Teflon® tape and reinstall fitting.
17. Reinstall the EASYpure UV/UF cover. Close the cartridge access door.
18. Reattach the power cord and the pump protector or the pump interlock and reconnect the unit to the power supply.
19. Operate normally.

Shutdown

If the EASYpure UV/UF is to be shut down for an extended period of time, the unit should be completely drained and the cartridges and ultrafilter removed to prevent the growth of bacteria.

If the system has remained inactive and full of water for more than 96 hours, the unit should be drained, sanitized and new cartridges installed prior to use.

Troubleshooting

Problem	Possible Causes	Solutions
EASYpure UV/UF completely inactive. (Pump not operating, control panel not lit, etc.)	<p>No electrical power to EASYpure UV/UF.</p> <p>Membrane Switch leads not connected.</p> <p>Main Power Switch off.</p> <p>Connector from Main PCB to Display PCB not connected.</p> <p>Fuses blown.</p>	<p>Ensure that the EASYpure UV/UF power cord is connected to a live power source and completely plugged into electrical outlet.</p> <p>Disconnect unit from power. Check and reconnect.</p> <p>Place to On Position.</p> <p>Disconnect unit from power. Check and reconnect.</p> <p>Replace the fuses as indicated in the Fuse Replacement section.</p>
Pump runs, but no display (no digital display).	Resistivity Monitor PCB and Display PCB not connected.	<p>Disconnect unit from power. Check and reconnect boards.</p>
Pump does not run. Display lit.	<p>Low water in feedwater tank or low inlet water pressure.</p> <p>Jumper or devices not installed in pump interlock.</p> <p>Pump worn out or defective.</p>	<p>Replenish feedwater. Check inlet water line for constrictions, blockages or closed valves.</p> <p>Install.</p> <p>Replace pump.</p>
Display reads "Err" when checking resistivity.	<p>Resistivity cell lead disconnected.</p> <p>Air in system.</p> <p>Resistivity cell defective.</p> <p>Resistivity cell dirty.</p>	<p>Check resistivity cell lead.</p> <p>Purge air from system by drawing off water according to the instructions in the Operation section.</p> <p>Replace resistivity cell.</p> <p>Clean cell and reinstall.</p>

Problem	Possible Causes	Solutions
Recirculated water will not rinse up to desired purity level.	Exhausted cartridge Cartridges are contaminated. Cartridges out of order.	Replace the cartridge as indicated in the Cartridge Replacement section. Replace cartridges. Install the cartridges in the proper order as indicated in the Cartridge Installation section.
Pyrogens in product water.	System contaminated. Ultrafilter needs replacement.	Sanitize system. Replace Ultrafilter.
Reduced or no product flow from the 0.2 filter assembly.	0.2 micron final filter clogged. Cartridges improperly rinsed.	Replace the 0.2 filter assembly as indicated in the 0.2 Micron Filter Replacement section. Rinse cartridges; install new filter.
0.2 micron final filter clogs rapidly after replacement.	EASYPure UV/UF contaminated with bacteria.	Sanitize EASYPure UV/UF according to the instructions in System Sanitization. Replace the 0.2 filter assembly as indicated in the 0.2 Micron Filter Replacement section.
Short cartridge life.	Cartridges being used are beyond expiration date. Change in feedwater characteristics.	Check the expiration date. Cartridges begin to lose capacity after being stored two years from the date of manufacture. Replace the cartridges with unexpired ones. If a Barnstead ROpure is the feedwater source, check that the membrane is functioning properly.

TROUBLESHOOTING

Problem	Possible Causes	Solutions
Short cartridge life (cont.)		<p>If a Barnstead Still is the feedwater source, ensure that the membrane is functioning properly.</p> <p>If feedwater is from a central water purification system, verify water quality and proper functioning of the system.</p>
Water leakage inside EASYpure UV/UF.	<p>Loose connections.</p> <p>Missing or defective cartridge O-rings.</p>	<p>Tighten connections.</p> <p>Install or replace cartridge O-rings.</p>
Green light on UV Solid State Ballast not lit and audible alarm sounds.	<p>UV lamp not plugged into UV Solid State Ballast.</p> <p>UV lamp burnt out.</p> <p>UV lamp not connected to connector or improper connection.</p>	<p>Plug UV lamp into UV Ballast.</p> <p>Replace UV lamp.</p> <p>Recheck/reconnect.</p>

Replacement Parts

Consumables

Consumable parts are those *required* to support the day-to-day operation of this equipment.

Barnstead|Thermolyne establishes two types of consumables; those items that *must* periodically be replaced to maintain performance (filters, resin cartridges, etc.) and other items of limited life (indicator lights, fuses, etc.) that you can expect to replace on a more or less random basis. Where practical, Barnstead|Thermolyne recommends the frequency of replacement, or provides information on life expectancy from which you may calculate a replacement interval compatible with your usage pattern.

The replacement of consumable parts is discussed in the MAINTENANCE AND SERVICING section to assist you in accomplishing your own service. Consumables may be ordered separately and in some cases, as an expendables kit. Check with your Barnstead|Thermolyne representative for additional information on the expendables kit.

<u>Exploded View Key Number</u>	<u>Description</u>	<u>Catalog No.</u>	<u>Recommended Quantity</u>
Not Shown	Pretreatment Cartridge DI Feed	D50230	1
Not Shown	EASYPure High Purity/Low TOC Cartridge	D50229	1
Not Shown	Ultrapure Mixed Bed Cartridge	D50233	1
Not Shown	0.2 Micron Filter and Bell Assembly	FL703X2	2
1	Fuse, Power Entry		
	100-120 Volt	04455	2
	230 Volt (5X20mm, Time Lag (T),		
	250V, 1.0 Amps)	5120-0025	2
	240 Volt	FZX37	2
Not Shown	Empty Cartridges for sanitization (set of 2)	D7034	1
Not Shown	O-rings, cartridges	06162	12
2	Ultraviolet lamp	LMX13	1
Not Shown	Fuse - Solid State Ballast	FZX47	1
Not Shown	Ultrafilter	FL550X1	1

REPLACEMENT PARTS

General Maintenance

General maintenance parts are defined as laboratory level repair parts which do not require great expertise or special tools for installation. Barnstead|Thermolyne recommends that you stock the general maintenance parts as an aid to ensuring the continued operation of this equipment.

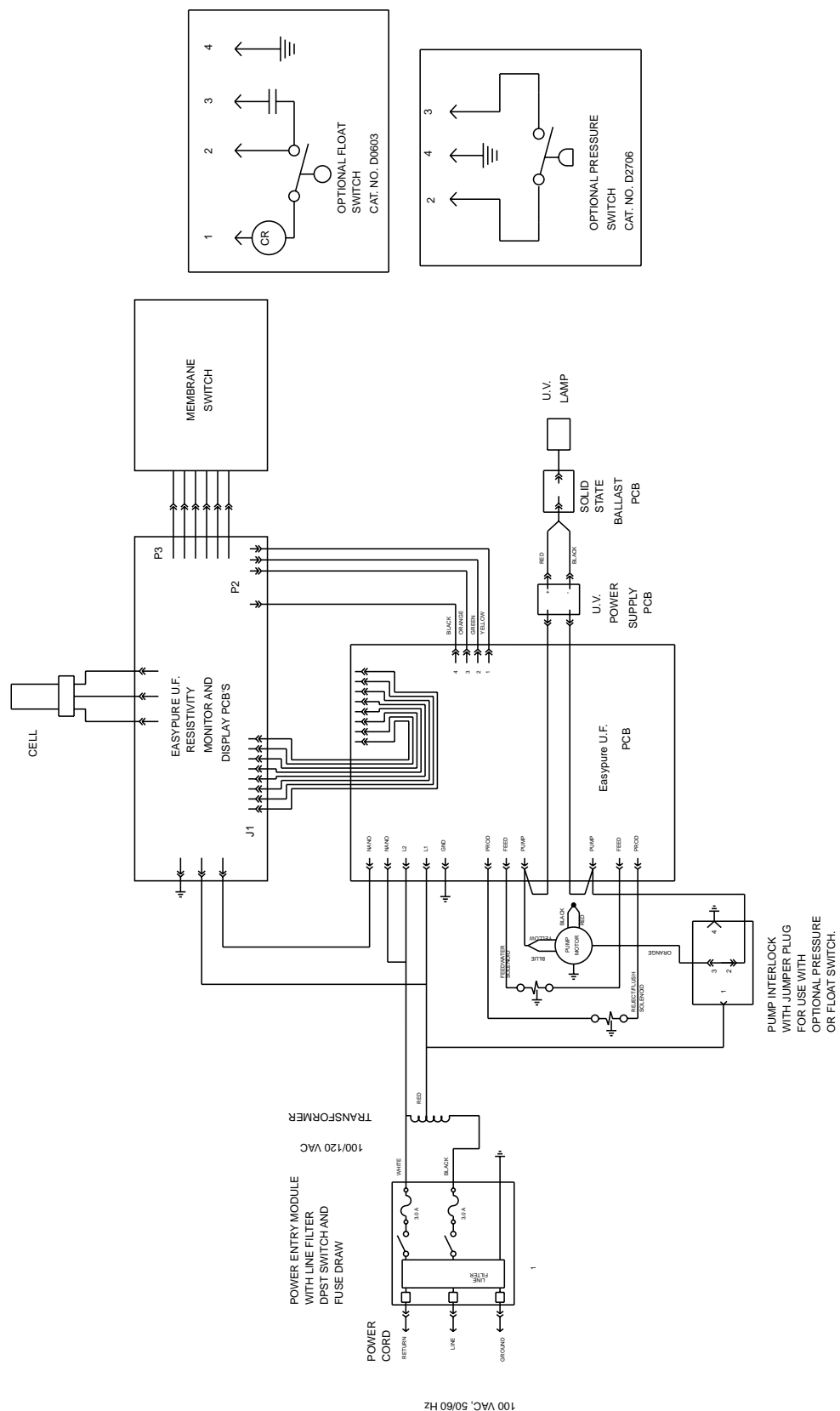
<u>Exploded View Key Number</u>	<u>Description</u>	<u>Catalog No.</u>	<u>Recommended Quantity</u>
3	Check Valve	02214	1
4	Luer Fitting	PM703X3	1
5	Pressure Regulating Valve	02280	1

Safety Stock

For critical applications where performance with *minimum* downtime is required, Barnstead|Thermolyne recommends that you maintain a local stock of those parts listed in the GENERAL MAINTENANCE PARTS and SAFETY STOCK sections.

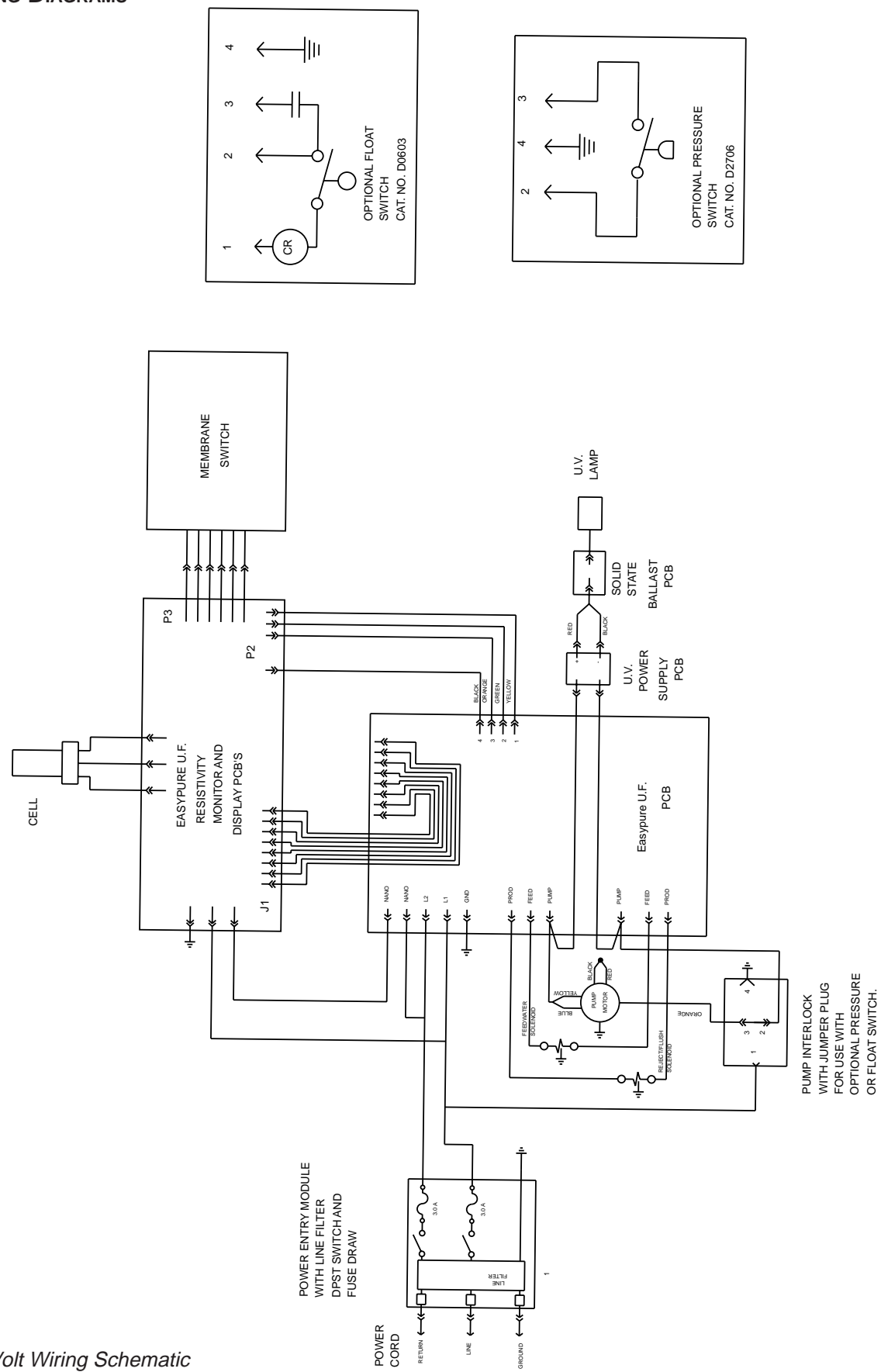
<u>Exploded View Key Number</u>	<u>Description</u>	<u>Catalog No.</u>	<u>Recommended Quantity</u>
6	Display PCB	PC741X1A	1
7	Resistivity Monitor PCB		
	100-120 Volt	PC741X2	1
	230-240 Volt	PC741X4	1
8	Pump and Motor Ass'y.		
	100-120 Volt	PU1056X2A	1
	230-240 Volt	PU1056X1A	1
9	Resistivity Cell	E703X1A	1
10	Draw-Off Valve Ass'y.	PM741X1A	1
11	Main PCB	PC741X3A	1
12	Solenoid Valve		
	100-120 Volt	RY631X1A	1
	230-240 Volt	RY631X3A	1
13	UV Power Supply		1
	100V & 120V	PC733X1B	1
	230-240V	PC733X3A	1
14	Solid State Ballast	PC733X2	1

Wiring Diagrams

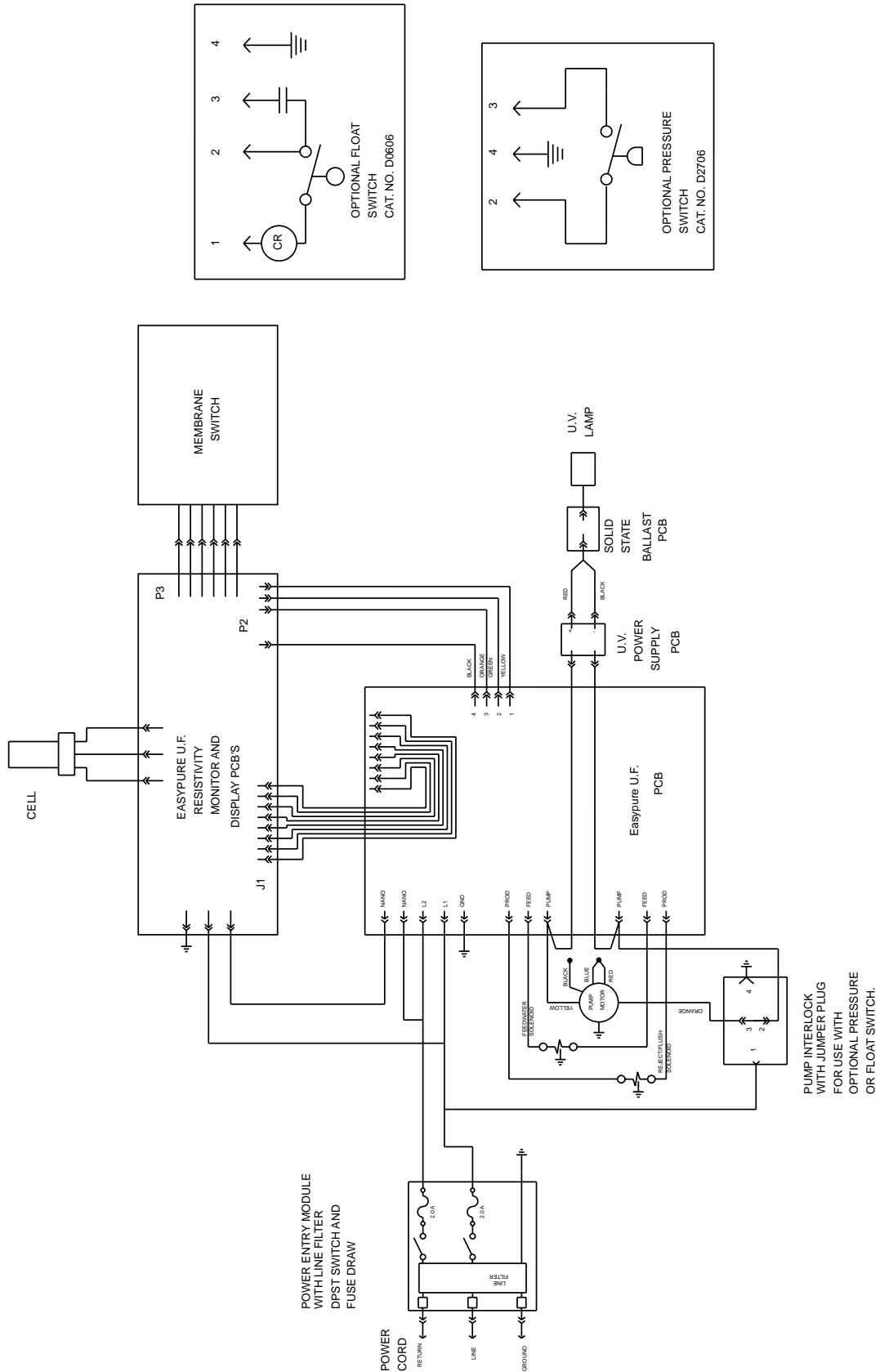


100 Volt Wiring Schematic

WIRING DIAGRAMS



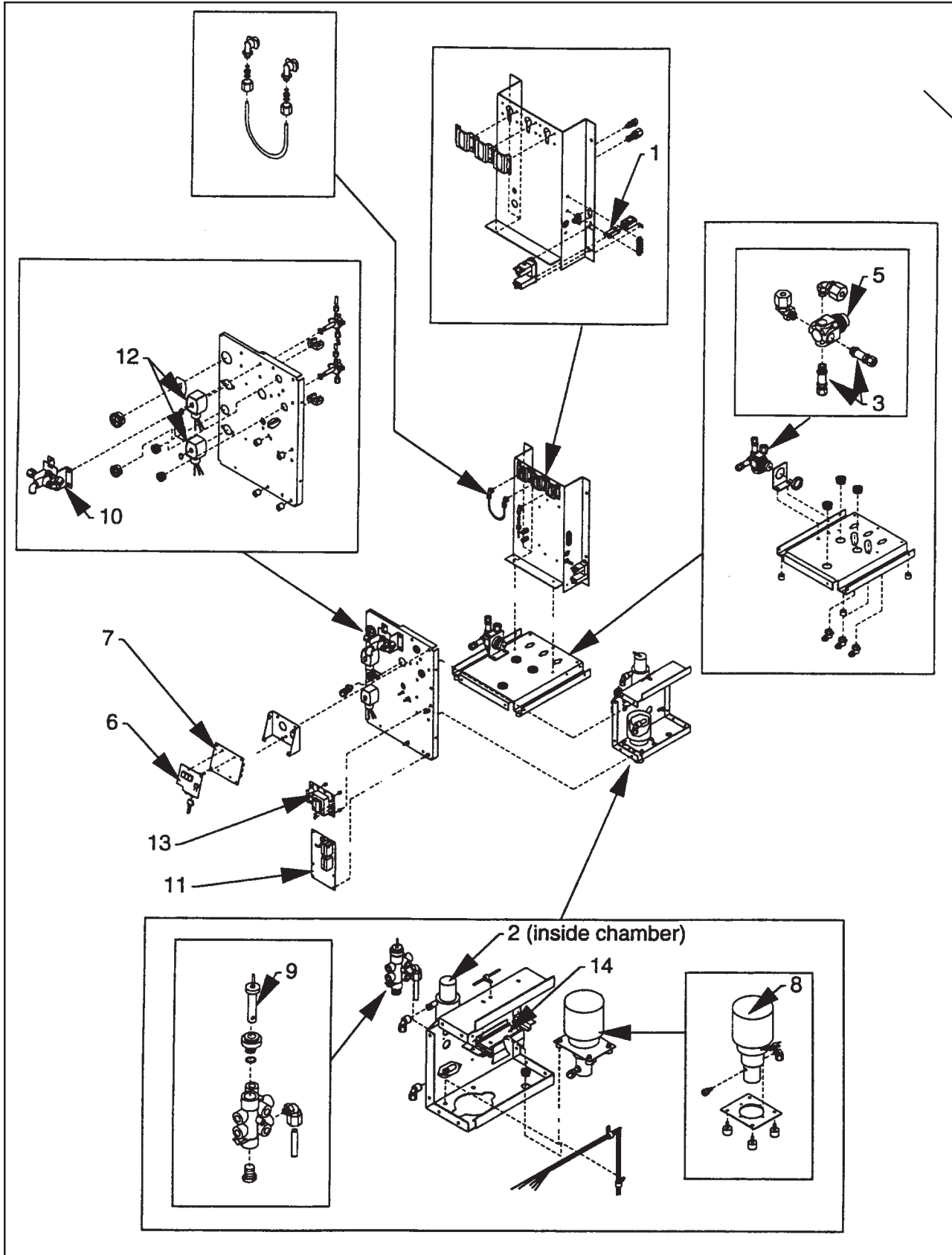
120 Volt Wiring Schematic

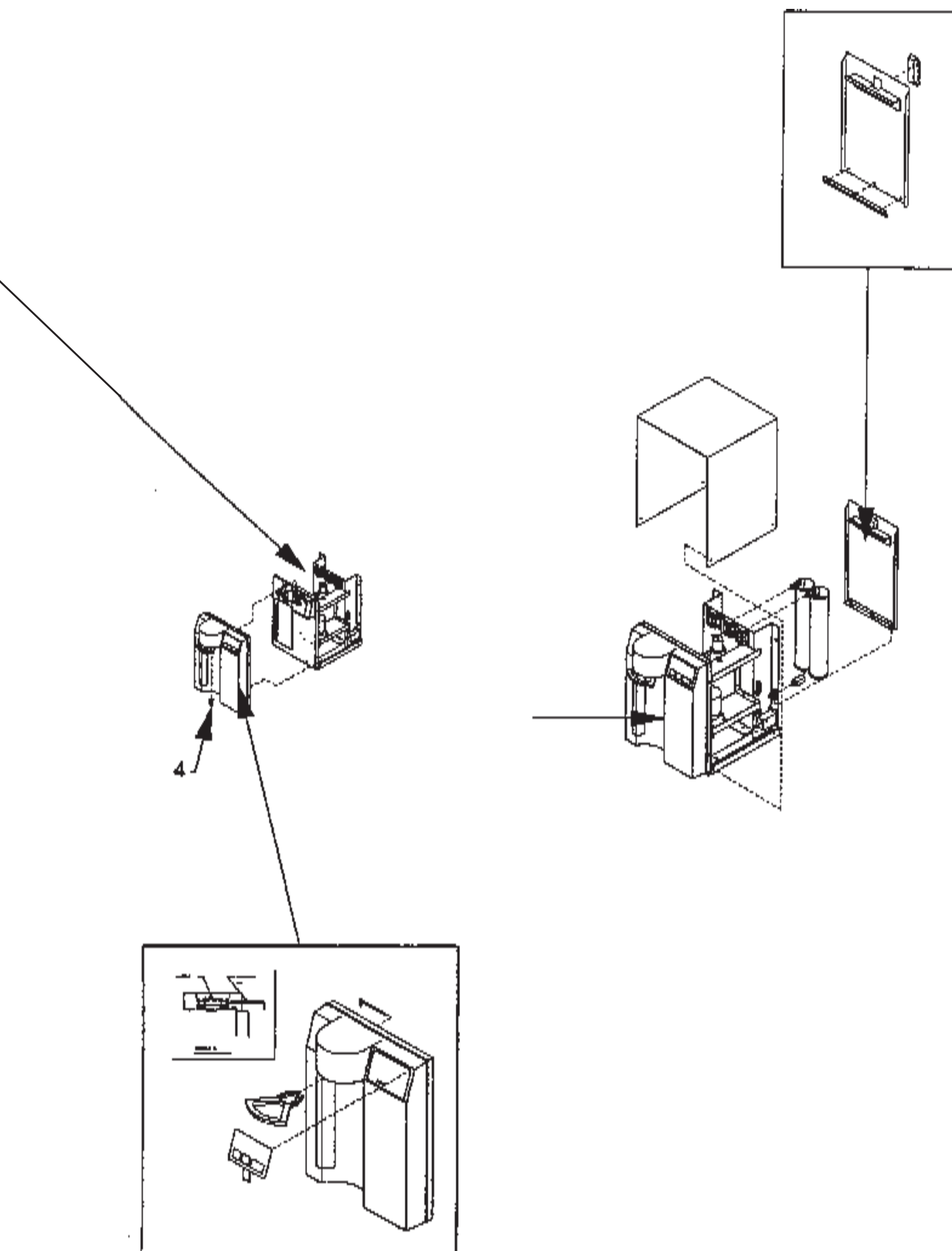


230 - 240 Volt Wiring Schematic

240 VAC, 50/60 Hz

Exploded Views





Ordering Procedures

Please refer to the Specification Plate for the complete model number, serial number, and series number when requesting service, replacement parts or in any correspondence concerning this unit.

All parts listed herein may be ordered from the **Barnstead|Thermolyne** dealer from whom you purchased this unit or can be obtained promptly from the factory. When service or replacement parts are needed we ask that you check first with your dealer. If the dealer cannot handle your request, then contact our Customer Service Department at 319-556-2241 or 800-553-0039.

Prior to returning any materials to **Barnstead|Thermolyne Corp.**, please contact our Customer Service Department for a "Return Goods Authorization" number (RGA). Material Returned without an RGA number will be returned.

One Year Limited Warranty

Barnstead|Thermolyne Corporation warrants that if a product manufactured by **Barnstead|Thermolyne** and sold by it within the continental United States or Canada proves to be defective in material or construction, it will provide you, without charge, for a period of ninety (90) days, the labor, and a period of one (1) year, the parts, necessary to remedy any such defect. Outside the continental United States and Canada, the warranty provides, for one (1) year, the parts necessary to remedy any such defect. The warranty period shall commence either six (6) months following the date the product is sold by **Barnstead|Thermolyne** or on the date it is purchased by the original retail consumer, whichever date occurs first.

All warranty inspections and repairs must be performed by and parts obtained from an authorized **Barnstead|Thermolyne** dealer or **Barnstead|Thermolyne** (at its own discretion). Heating elements, however, because of their susceptibility to overheating and contamination, must be returned to our factory, and if, upon inspection, it is concluded that failure is not due to excessive high temperature or contamination, warranty replacement will be provided by **Barnstead|Thermolyne**. The name of the authorized **Barnstead|Thermolyne** dealer nearest you may be obtained by calling 1-800-446-6060 (319-556-2241) or writing to:

Barnstead|Thermolyne
P.O. Box 797
2555 Kerper Boulevard
Dubuque, IA 52004-0797
USA
FAX: (319) 589-0516
E-MAIL ADDRESS: mkt@barnstead.com

Barnstead|Thermolyne's sole obligation with respect to its product shall be to repair or (at its own discretion) replace the product. Under no circumstances shall it be liable for incidental or consequential damage.

THE WARRANTY STATED HEREIN IS THE SOLE WARRANTY APPLICABLE TO **Barnstead|Thermolyne** PRODUCTS. **Barnstead|Thermolyne** EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR USE.

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